

# An Evaluation of the Executive Health Examination

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*During a one-year period 420 middle-aged patients were examined as part of the executive health program at the Palo Alto Clinic. Of these, 30 percent were found to have at least one disease and 20 percent to have at least one laboratory abnormality. It is concluded that such examinations are worthwhile, especially in identifying self-destructive habits and serious emotional illnesses in busy, highly motivated executives.*

THE CONCEPT that one can prevent disease and maintain health by participating in an annual or periodic physical examination program is under attack.<sup>1-3</sup> Critics point out the high cost of such examinations and associated low yield of life-threatening diagnoses. Self-destructive habits such as smoking, alcohol abuse and overeating are difficult to change.<sup>4</sup> Screening laboratory tests are plagued with false-positive results, are often misunderstood, and often are ignored by both doctors and patients.<sup>5-9</sup> We are told that "most illnesses, especially the major ones, are blind accidents that we have no idea how to prevent."<sup>1</sup> Furthermore, health professionals tend to "oversell prevention, to overestimate their ability to deal effectively with detected disease, and to overvalue the benefit of their care to patients."<sup>2</sup>

Despite these criticisms, corporations continue to invest considerable effort and money in executive health programs. Past reviews of the health benefits derived have been favorable. For example, Carryer and colleagues concluded that "such care does permit the prevention, arrest, reversal, and cure of certain diseases and can

promote the health and well-being of the subject and decrease his risk of morbidity and early mortality."<sup>10</sup>

Very few clinics with executive health programs have published results from which one can make judgments as to a plan's worth. Thus, a review of my experience seems both timely and useful.

## Executive Health Program at the Palo Alto Clinic

The Palo Alto Clinic (Palo Alto, California) has sponsored an executive health program for more than 30 years. At present more than 100 corporations, mainly involved with finance, retailing or electronic equipment manufacture, send top management employees voluntarily through the program every one to two years. The examination takes one day and includes history, physical examination and laboratory tests including blood count, analysis of urine, VDRL, 12-channel panel—SMA 12/60 (calcium, phosphorus, glucose, blood urea nitrogen, uric acid, cholesterol, albumin, total protein, bilirubin, alkaline phosphatase, lactic dehydrogenase and serum glutamic oxaloacetic transaminase), T<sub>4</sub> thyroid test, triglyceride, an x-ray study of the chest and electrocardiogram. Tests such as glaucoma screening,

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## EXECUTIVE HEALTH EXAMINATION

pulmonary function, proctosigmoidoscopy and the exercise electrocardiogram are often, but not always, done. Most corporations allow further diagnostic evaluation if deemed necessary by the examining doctor.

Cost of the above program varies from \$250 to \$350 per examination. The results are discussed with each patient by phone, mail or in person depending on his or her wishes and availability.

### Population Studied

To avoid interobserver variability I reviewed all the records of executives seen by a board certified internist (the author) over a one-year period.

TABLE 1.—Age Groups of 420 Patients in Executive Health Program

Ages of Patients (Years)	Number of Patients
20-30 .....	6
30-40 .....	99
40-50 .....	157
50-60 .....	130
>60 .....	28
<b>TOTAL .....</b>	<b>420</b>

TABLE 2.—Diagnoses in 420 Executives

Disease	Number of Patients*	Percent of Patients
Obesity† .....	33 ( 5)	8
Hypertension .....	24 (20)	6
Depression .....	17 ( 3)	10
Alcoholism‡ .....	14 ( 6)	
Anxiety .....	10 ( 4)	
Arthritis§ .....	12 ( 8)	3
Inguinal hernia ....	8 ( 8)	2
Glaucoma .....	6 ( 6)	1.5
Miscellaneous .....	20 (17)	5

\*Parentheses show number with new diagnosis.

†Defined as a weight greater than 20 pounds over "ideal" by Metropolitan Life Insurance tables.<sup>11</sup>

‡Criteria for alcoholism are those recently published by the National Council on Alcoholism.<sup>12</sup> In these 14 patients, diagnosis was based on the amount consumed, the behavior patterns showing psychological dependence on alcohol, or a combination of both.

§Diagnosis based on physical findings in the hands (7), and x-ray studies of the spine (2), hips (2) and knees (1).

Of the 420 persons examined, most were men (403 of 420), white, middle-aged, college-educated and in positions of considerable responsibility. Age groups are given in Table 1.

### Results

As can be seen in Table 2, 30 percent of these executives were found to have at least one disease. Diagnoses included obesity in 33, serious emotional illnesses in 27, alcoholism in 14 and hypertension (blood pressure greater than 160/90 mm of mercury) in 24. Other disorders were degenerative arthritis (12), inguinal hernia (8), prostatic hypertrophy (6), skin cancer (5), glaucoma (6), heart murmur (3), angina pectoris (3), hiatus hernia with esophagitis (2), cataracts, diverticulosis, celiac sprue, cholelithiasis, peptic ulcer (5), goiter, nephrolithiasis and sarcoidosis.

Patient awareness of their diseases varied. For example, most of those who were obese knew it, and had attempted to lose weight by a variety of diets. Although a few with hypertension had been told of "high blood pressure" in the past, none were receiving treatment or understood the serious implications of this diagnosis. Most of those with serious emotional illnesses admitted to the same only after appropriate and nonthreatening questions were asked (see below). The other listed diagnoses were new ones in virtually every case (Table 2).

Laboratory screening tests detected abnormalities in 93 of the 420 patients (20 percent). These mainly consisted of minimal to moderate elevations in serum cholesterol, triglyceride, uric acid or bilirubin values (Table 3).

Eleven pulmonary function tests gave abnormal findings, ten of them in heavy smokers. Only two electrocardiograms (minor arrhythmias) and one x-ray study of the chest (bilateral infiltrates later diagnosed as sarcoidosis) showed abnormalities. Ten of 230 patients (about 5 percent) having

TABLE 3.—Abnormal Results of Screening Tests in 420 Executives

Test	Normal Values	Number of Patients With Abnormal Values	Range of Abnormal Values
Cholesterol .....	150-250 mg/dl	22	270-345 mg/dl
Triglyceride .....	less than 165 mg/dl	17	180-440 mg/dl
Uric acid .....	2.5-8.0 mg/dl	17	8-10.2 mg/dl
Bilirubin .....	0.2-1.2 mg/dl	15	1.5-3.2 mg/dl
Glaucoma screening ...	...	6	...
Analysis of urine .....	...	4	...
Miscellaneous .....	...	18	...

## EXECUTIVE HEALTH EXAMINATION

TABLE 4.—*Poor Health Habits Identified in 420 Executives*

<i>Habit</i>	<i>Number of Patients</i>	<i>(Percent)</i>
Sedentary life-style . . . . .	200	(48)
Smoking . . . . .	108	(26)
Obesity . . . . .	33	( 7)
Alcohol abuse . . . . .	14	( 3)
Drug abuse . . . . .	0	( 0)

routine proctosigmoidoscopy were noted to have small polyps; all polyps were benign on removal.

Poor health habits<sup>4,13</sup> identified in the 420 patients are given in Table 4.

#### *Patient Compliance*

I had examined and counseled 218 of the 420 patients in years previous to this study, and thus could ascertain how many had been able to change poor health habits. Five of the 14 obese patients had managed to lose at least 10 pounds of weight, 12 of 48 had stopped smoking, 6 of 8 were abstaining from alcohol and virtually all felt they were more physically active. Fourteen of the 20 patients with depression or chronic anxiety, on my advice, received counseling in the interim and felt considerably improved.

#### **Discussion**

The annual or periodic health examination has become an important component of American health over the past 100 years.<sup>14</sup> It has become increasingly clear, however, that the mere establishment of a diagnosis may be of little real benefit to a patient.<sup>2</sup> Reviews of executive health programs have been generally favorable, but this has been based on listing many new diagnoses.<sup>10,14-17</sup> Results of my review agree in general with those previously cited. For example, 20 percent to 30 percent of executives are obese, 10 percent to 20 percent have hypertension and another 5 percent to 20 percent show signs of arteriosclerotic heart disease. In contrast to my findings, earlier studies have barely mentioned emotional illness. The discovery of cancer, other than of the skin, is uncommon.

Because the 420 executives examined cannot be compared with a control group, I am unable to say with certainty that their executive health examination will lead to less future morbidity and mortality. Nonetheless, the discovery of hypertension, emotional illness and other diseases, combined with the changing of poor health habits

in some, allows me to feel that the overall results will be beneficial. Carryer and colleagues<sup>10</sup> after reviewing results of 2,812 examinations on 569 executives seen at the Mayo Clinic over 24 years felt likewise. Two large groups of middle-aged adults were followed-up for 7 to 11 years in a Kaiser-Permanente health plan.<sup>18,19</sup> Those having regular examinations had less "potentially post-ponable" causes of death such as cancer, hypertension, and stroke as compared with those in the control group.

The value of laboratory screening tests, as well as which ones to include in executive health programs, is still uncertain. One can list abnormal values derived from such testing, but the importance of such results to one's future health is not clear.<sup>5,6,9</sup> Moreover, abnormal results may be falsely positive, especially when the disease being screened for is uncommon.<sup>7,20</sup> Finally, there is considerable debate about the desirability of even treating such laboratory "diseases" as hyperlipidemia or hyperuricemia. All of the patients with hyperlipidemia listed in Table 3 were treated by diet alone. The highest uric acid determination was 10.2 mg per dl, and none of the 17 patients with hyperuricemia were felt to require drug therapy. The hyperbilirubinemia was minimal in all, and did not indicate clinical evidence of liver or biliary tract disease. Other screening tests, especially pulmonary function tests, x-ray studies of the chest and electrocardiograms, in this population of asymptomatic men were of little benefit.

With the above considerations in mind, can one justify an executive health program? My answer is a qualified yes and depends on the goals one hopes to achieve by such programs.

Certainly *risk factors* can be identified, and perhaps future disease can be prevented. There is some evidence that good habits promote health and allow patients to feel better.<sup>13,15,21</sup> Although as noted by Burnam<sup>4</sup> only 10 percent to 30 percent of those with self-destructive habits such as smoking, overeating and alcoholism can change, at least a start can be made via the periodic examination. Much depends on the doctor-patient interaction and art of communication.<sup>22</sup>

*Diseases* can be identified, treated and at times cured. I have been impressed by the opportunity in this executive health program to uncover serious emotional illness, especially depression. Executives often live under constant stress,<sup>23</sup> and seem relieved when asked to discuss this aspect of their lives in the privacy of a doctor's office. I have

## EXECUTIVE HEALTH EXAMINATION

found many to suffer from marital discord,<sup>24</sup> loneliness, overwork<sup>25,26</sup> and sexual dysfunction,<sup>27</sup> but they have to be asked, rarely volunteering this information. Those with hypertension and the numerous miscellaneous diseases noted above are now under appropriate management. Of these, 14 were advised to have operations: five with skin cancer, six with large or symptomatic inguinal hernias, two with significant prostatism and one with gallstones.

Corporations have been satisfied with our program. It is of interest that most have not asked for reports of specific results, and thus individual "privacy" has not been an issue. Moreover, when an attempt was made by me to decrease the number of screening tests, executives were often upset, and their companies asked that the program not be changed.

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